

➤ Step 1

In all cases, upgrading may be not possible, because the intention of the customer is not known. So, improving any performance metric by nearly doubling the cost may or may not have a price impact on the company.

> Step 1

As a search engine provider paid by ad hits, so the throughput is critical. Most of the HTTP traffic is small. The network is not as great a bottleneck as it would be for large data transfers. RAID 0 may be an effective solution. However, RAID 1 will almost certainly not be an effective solution. Increased availability makes our product more attractive, but a 1.6 cost multiple is most likely too high.

> Step 2

RAID 0 is increase throughput by 70%, meaning the potential exists to serve 1.7 times as many ads. The cost of this gain is 0.6 of the original price. 1.7 times as many ads for 1.6 times the original cost may be given good reason for the upgrade cost.

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As an online backup provider, availability is critical. Therefore, by using RAID 1 where failure rate decreases for a 1.6 time's cost increase might be worthwhile. However, online backup is more appealing when services are provided quickly making RAID 0 appealing. RAID 1 has more potential for increased revenue by making the disk array available more. For our original configuration, we are losing between 12 and 19 disks per 1000 to 1500 every 7 years. If the system lifetime is 7 years, the RAID 1 upgrade will almost certainly not pay for itself even though it addresses the most critical property of our system. Over 10 years, we lose between 30 and 50 drives. If repair times are small, then even over a 10 year span the RAID 1 solution will not be cost effective.